Original Research

Satisfaction, commitment, and psychological well-being among HMO physicians

ABSTRACT ● **Objective** To identify the factors that predict professional satisfaction, organizational commitment, and burnout among physicians working for health maintenance organizations (HMOs). ● **Methods and participants** Data came from mail surveys of Kaiser Permanente physicians in the Northwest and Ohio regions. The average response rate was 80% (n = 608). ● **Results** The single most important predictor for all 3 outcomes was a sense of control over the practice environment. Other significant predictors included perceived work demands, social support from colleagues, and satisfaction with resources. The relative importance of these predictors varied, depending on the outcome under consideration. All 3 outcomes were also related to physician age and specialty. Older physicians had higher levels of satisfaction and commitment and lower levels of burnout. Pediatricians were more satisfied and committed to the HMO and were less likely to burn out. ● **Conclusions** Physicians who perceive greater control over the practice environment, who perceive that their work demands are reasonable, and who have more support from colleagues have higher levels of satisfaction, commitment to the HMO, and psychological well-being. Interventions and administrative changes that give physicians more control over how they do their professional work and that enhance social supports are likely to improve both physician morale and performance.

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INTRODUCTION

The rapid changes in medical practice in the past quarter century have stimulated considerable interest in measuring physicians' perceptions and attitudes about their work.[1] Low levels of job satisfaction among physicians may affect doctor-patient relationships and compromise quality of care. Dissatisfaction with professional work among physicians has also been associated with inappropriate prescribing patterns,[2] lower levels of patient satisfaction, and decreased patient compliance with prescribed medications and follow-up appointments.[3]

A recent study by researchers at the Rand Corporation found that physician job satisfaction is linked with patient actions that are critical to the management of chronic diseases.[4] The researchers observed about 1,800 patients with diabetes, heart disease, high blood pressure, or depressive symptoms who visited 186 physicians practicing in health maintenance organizations (HMOs), large multispecialty groups, and solo practices in 3 cities. They found that patients are more likely to follow their physicians' advice if their physicians have busy practices, are happy in their work, take time to answer questions, and conduct patient follow-up by phone or office visits.

Physician turnover is also greater in organizations with higher levels of physician dissatisfaction.[5] High turnover can disrupt continuity of care and can increase costs. Finally, high levels of dissatisfaction decrease physicians' commitment to the practice setting and, if persistent, can lead to mental strain and burnout.[6,7] Thus, reasonable levels of physician satisfaction are prerequisites for the stability and long-range success of HMOs.

The research literature suggests that variation in physicians' perceptions derive from 2 basic sources: the stress inherent in the role of physicians,[8,9] and factors within a practice or work setting.[10-18] Most research has dealt with 1 or the other of these sources, but no single study has analyzed their relative importance in accounting for differences in physicians' attitudes and perceptions.

The aims of this study were to learn whether uncertainty in patient care affects physician satisfaction, organizational commitment, and burnout; to learn whether job characteristics of physicians affect satisfaction, commitment, and burnout; and to identify the relative importance of uncertainty versus job characteristics in accounting for variation in these outcomes.

METHODS

Data source and study setting

The data for this study, conducted in 1991 to 1992, were obtained by mail surveys of physicians practicing in 2 Kaiser Permanente regions: the Northwest and the Ohio regions. The 2 regions serve more than 600,000 members and provide integrated, comprehensive inpatient and outpatient care for an enrolled population. The surveys were sponsored and funded in part by Northwest Permanente (NWP) and Ohio Permanente Medical Group (OPMG).

Study subjects and data collection

The study group included all 526 physicians in NWP, the medical group affiliated with Kaiser Permanente's Northwest Region, and all 235 physicians in OPMG, the medical group affiliated with Kaiser Permanente's Ohio Region at the time of the study.

The survey instrument was a self-administered questionnaire that included both structured and open-ended questions. It was sent to each physician's home and took about 2 hours to complete. Each physician could receive up to 3 mail contacts requesting participation in the study.

In addition, attempts were made to contact all nonrespondents by telephone after the third mailing. The average response rate for the 2 medical groups was 80%. Physician respondents in NWP and OPMG were similar in age, but NWP respondents were more likely to be men. NWP also had a higher proportion of family physicians and a smaller proportion of pediatricians. For additional information about the survey design and data collection procedures, see the article by Freeborn and Pope.[19]

Brief descriptions of the study variables are given in table 1. All are derived from physicians' responses to the questionnaire (self-report). More specific details on the measures and how they were constructed are available from the author on request [also see the original article].

Outcome measures: dependent variables

"Physician satisfaction" was measured by a modified version of the measure developed by Lichtenstein.[20] Three items were included in the summary measure: the physician's satisfaction with his or her medical career; whether the physician would choose this setting again, given the choice; and whether the physician would recommend this practice setting to a physician colleague (non-Kaiser Permanente).

"Organizational commitment"[21] measures the relative strength of a person's identification with and involvement in a particular organization (eg, Kaiser Permanente).

Burnout was measured by the tedium index, a well-established measure of the disorder.[22] It represents 3 aspects of tedium: physical exhaustion, emotional exhaustion, and mental exhaustion.

Table 1 *Outcomes by physician demographic characteristics and job demand**

Variable	Satisfaction	Organizational commitment	Burnout (tedium index)
Age, yr			
30-36	3.5 (95)†	3.6 (95)	2.3 (92)†
37-41	3.5 (145)	3.7 (144)	2.4 (144)
42-47	3.4 (162)	3.7 (162)	2.4 (162)
≥48	3.6 (187)	3.9 (188)	2.2 (186)
Sex			
Male	3.5 (466)	3.7 (466)	2.3 (464)
Female	3.5 (132)	3.7 (132)	2.3 (130)
Specialty			
General internal medicine	3.4 (113)†	3.6 (114)‡	2.5 (112)†
Family practice	3.5 (63)	3.8 (63)	2.3 (64)
Pediatrics	3.7 (70)	3.9 (70)	2.2 (70)
Obstetrics-gynecology	3.6 (43)	3.6 (44)	2.4 (42)
Other	3.5 (298)	3.7 (297)	2.3 (296)
Job demands			
Too high	3.3 (170)†	3.5 (170)†	2.6 (168)†
Too low, just right	3.6 (352)	3.8 (353)	2.2 (352)

*Data are the mean scores on each of the summary measures or variable, with the number responding for each category given in parentheses.
†$P < 0.01$.
‡$P < 0.05$.

Independent variables

Uncertainty

"Stress from uncertainty"[9] measured physicians' affective reactions to uncertainty in patient care (eg, uncertainty of diagnosis, not being sure what is best for the patient, and the like).

Job characteristics

"Job demands" was measured by a single item that asked physicians, "In order to do a good job, is your total number of patient visits about right, too high, or too low for the number of hours you work?" In the analysis, this variable was collapsed into 2 categories (too high vs about right/too low).

"Control" was a summary measure based on 4 questionnaire items—ability to influence work environment, opportunity to participate in decision making, the degree to which lack of autonomy contributes to feelings of stress, and satisfaction with control over schedule.

"Resources" was a modified version of the measure developed by Lichtenstein.[20] It captures physicians' satisfaction with availability and adequacy of various resources such as support staff and equipment.

"Social support" was a 4-item summary measure of the quality of collegial relations (eg, emotional support and helpfulness among physician colleagues).

Covariates: other variables that may be related to the outcomes

"Workload intensity" was based on 2 items from the survey: self-reported number of office visits per week and number of hours per week seeing patients. These 2 variables were divided to give patient visits per hour.

"Caseload characteristics" were based on each physician's estimate of the percentage of female patients in his or her caseload and the percentage of patients aged 65 years and older in his or her caseload.

"Patient-physician relationship" was based on a series of items that ask physicians about the extent to which they think patient-physician interactions are problematic or troublesome (a correlate of dissatisfaction in many studies of HMO physicians).[5,16,18,19]

Physician demographics included age, sex, specialty, time with HMO, and practice location. These were measured by individual survey items.

Analysis

The first step in the data analysis was to examine the association between each independent variable and each outcome measure (bivariate analysis). The statistical procedures used included analysis of variance and Pearson correlation coefficient (tables 1 and 2).

The second step consisted of a series of multivariate analyses (multiple regression) to determine significant predictors of the study outcomes after controlling for the

Table 2 *Relationship among study variables (Pearson correlation coefficients)*

Variable	Commitment	Burnout	Age, yr	Years at HMO	SUS	Pt-MD relation	Pt visits/ hr, no.	Female pts, %	Pts >65	Demands	Control	Resources	Social support*
Physician satisfaction	0.74†	−0.49†	0.14†	0.07	−0.13†	−0.18†	−0.04	−0.05	−0.14†	−0.25†	0.58†	0.40†	0.40†
Organizational commitment		−0.41†	0.16†	0.07	−0.07	−0.10†	0.02	−0.10†	−0.10†	−0.23†	0.51†	0.37†	0.33†
Burnout (tedium index)			−0.19†	0.01	0.33†	0.26†	0.05	0.14†	0.12†	0.34†	−0.45†	−0.28	−0.25
Physician's age, yr				0.64†	−0.05	−0.15†	−0.01	−0.03	0.01	−0.13†	0.14†	0.03	0.02
Years with HMO					0.01	−0.09†	0.01	0.01	0.01	−0.08	0.07	−0.02	0.06
Stress from uncertainty (SUS)						0.27†	−0.01	−0.01	0.05	0.13†	−0.10†	−0.08†	0.02
Pt-MD relationship							0.11†	0.15†	0.11†	0.23†	−0.24†	−0.14†	−0.14†
Pt visits/hr, no.								0.01	−0.11†	0.07	0.03	0.04	−0.15†
Female patients, %									−0.01	0.13†	−0.10†	0.01	−0.08
Patients >65 yr, %										0.16†	−0.03	−0.06	0.04
Job demands‡											−0.32†	−0.17†	−0.11†
Perceived control												0.49†	0.36†
Resources													0.35†

HMO = health maintenance organization; Pt-MD = patient-physician; Pts = patients.
*The relationships of satisfaction and of social support with other variables were not determined.
†$P < 0.05$.
‡Perceived workload.

effects of the other variables (covariates) (tables 3, 4, and 5). Key conceptual variables and factors that were significant at the $P<0.05$ level in the bivariate analyses were included in the multiple regression analyses.

RESULTS

The 3 outcome measures were interrelated. Physician satisfaction and organizational commitment were highly correlated (Pearson $r = 0.74$; $P<0.05$), and both physician satisfaction (Pearson $r = -0.49$) and organizational commitment (Pearson $r = -0.41$) were negatively correlated with burnout ($P<0.05$). That is to say, as physician satisfaction and organizational commitment increased, burnout decreased.

Table 3 *Predictors of satisfaction (stepwise regression)*

Predictor variables*	Satisfaction R^2	Satisfaction R^2 change	Satisfaction β level
Perceived control	0.35	0.35	0.44†
Social support	0.39	0.04	0.21†
General internal medicine‡	0.40	0.01	−0.06†
Stress from uncertainty	0.41	0.01	−0.08†
Pediatrics‡	0.42	0.01	0.10†
Resources	0.42	0.01	0.10†
Obstetrics-gynecology‡	0.43	<0.01	0.07†
Job demands§	0.43	<0.01	−0.06

R^2 = Multiple Pearson correlation coefficient, squared.
*Variables that did not enter the model include physician's age, percentage of female patients, percentage of patients aged 65 years and older, patient-physician relationship, and family practice.
†$P < 0.05$.
‡Reference group = other.
§Perceived workload.

Bivariate analyses

All 3 outcomes were associated with physician age and specialty (table 1). Older physicians (older than 48 years) had higher mean satisfaction and commitment scores than younger physicians, and burnout scores were lower for younger (30- to 36-year-old) physicians and for older physicians (when compared with physicians in the 2 middle-age categories). Pediatricians had higher mean satisfaction and commitment scores than physicians in other specialty categories. Compared with other specialty categories, general internal medicine had the lowest mean satisfaction score and the highest mean burnout score.

Stress from uncertainty was weakly correlated with physician satisfaction (Pearson $r = -0.13$; $P<0.05$) and was unrelated to organizational commitment (table 2). Stress from uncertainty was more highly correlated with burnout (tedium index) than with physician satisfaction or organizational commitment (Pearson $r = 0.33$; $P<0.05$). Physicians with higher stress from uncertainty were more likely to experience burnout (table 2).

Job characteristics were significantly related to all 3 outcomes (tables 1 and 2). Physicians who felt their job demands were too high had significantly lower mean satisfaction and commitment scores and significantly higher burnout scores than physicians who felt their job demands were about right or too low (table 1). Perceived control, resources, and social support were significantly and positively correlated with both physician satisfaction and organizational commitment (table 2). These factors were also significantly related to burnout, but the coefficients were lower than those for satisfaction and commitment. In

Table 4 *Predictors of organizational commitment (stepwise regression)*

Predictor variables*	Organizational commitment R^2	R^2 change	β level
Perceived control	0.30	0.30	0.41†
Social support	0.32	0.02	0.15†
Pediatrics‡	0.33	0.01	0.11†
Resources	0.34	<0.01	0.10†
Age of physician	0.35	0.01	0.08†
Family practice	0.35	<0.01	0.06†
Job demands§	0.35	<0.01	−0.06

R^2 = Multiple Pearson correlation coefficient, squared.
*Variables that did not enter the model include percentage of female patients, percentage of patients aged 65 years and older, stress from uncertainty, patient-physician relationship, internal medicine specialty, and obstetrics-gynecology specialty.
†$P < 0.04$.
‡Reference group = other.
§Perceived workload.

the case of burnout, the correlations were negative: as perceived control, resources, and social supports increased, burnout decreased.

In terms of the covariates, the intensity of workload (patients seen per hour) did not significantly affect any of the outcomes. The patient-physician interaction variable was weakly correlated with the outcomes, and the findings were similar for the caseload variables (percentage of female patients, percentage of patients aged 65 years and older) (table 2).

Table 5 *Predictors of burnout (stepwise regression)*

Predictor variables*	Burnout R^2	R^2 change	β level
Perceived control	0.19	0.19	−0.29†
Stress from uncertainty	0.28	0.09	0.27‡
Job demands‡	0.31	0.04	0.16
Social support	0.33	0.01	−0.13†
Age of physician, yr	0.34	0.01	0.13†
Percentage of female patients	0.35	0.01	0.11†
Percentage of patients >65 yr	0.36	<0.01	0.08†
Family practice	0.36	<0.01	−0.06

R^2 = Multiple Pearson correlation coefficient, squared.
*Variables that did not enter the model include patient-physician relationship, satisfaction with resources, internal medicine specialty, pediatrics specialty, and obstetrics-gynecology specialty.
†$P < 0.04$.
‡Perceived workload.

Multivariate analyses

Perceived control was the single most important predictor of physician satisfaction after other factors were taken into account. Other significant predictors included social support, stress from uncertainty, specialty, and resources (table 3). The model explained approximately 43% of the total variation in physician satisfaction (Pearson $R^2 = 0.43$). Perceived control, social support, specialty, and resources were significant predictors of commitment (table 4), but the percentage of variation explained was smaller (35%; Pearson $R^2 = 0.35$).

Perceived control was the most important predictor of burnout, followed by stress from uncertainty and job demands (perceived workload) (table 5). Other significant predictors were social support, physician age, and characteristics of the physicians' caseloads (percentage of female patients, percentage of patients aged 65 years and older). The model accounted for 36% of the total variation in the burnout variable (tedium index) (Pearson $R^2 = 0.36$).

DISCUSSION

Perceived control over the practice environment, support from colleagues, and satisfaction with availability of resources were associated with higher levels of physician satisfaction and organizational commitment. Stress from uncertainty in dealing with patients affected satisfaction adversely but was unrelated to the level of organizational commitment. Physician satisfaction and organizational commitment also differed by specialty. Pediatricians were more satisfied and more committed than other specialists, a consistent finding in other studies of HMO physicians.[16,19,23]

Perceived control over the practice environment was also the single most important predictor of physician burnout. Stress from uncertainty in patient care, job demands, and social support also affected burnout levels among physicians. Physicians with less perceived control, greater stress from uncertainty, higher job demands, and fewer social supports were at greater risk for burnout. Other correlates of burnout included physician age and characteristics of a physician's caseload. Higher percentages of female and older patients were associated with higher levels of physician burnout.

The problem with our study and with most of these studies is that they are cross-sectional. Prospective data and longitudinal studies on the effects of physician dissatisfaction, burnout, and other measures of physician psychological well-being are strongly needed. Better measures of physician satisfaction[8,20] and more objective measures of workload and practice characteristics are also needed to clarify the real risk factors for practitioner dissatisfaction and burnout.[24] Our study has many of these same problems. Another limitation is that it focused on only 1 form of HMO (the nonprofit group model) and was limited

to 2 Kaiser Permanente sites. In addition, many changes have occurred in these practice sites since the early 1990s, and the larger medical environment has also changed dramatically.

Despite these limitations, our results confirm the growing evidence from a variety of occupations and settings that workers who perceive more control over their work are healthier, happier, more satisfied, and more productive. Physicians are no exception, as Wagner points out[24]: "Bureaucratic efforts to micromanage their (doctors) patient care, or control their staff or work setting need careful reexamination."

Implications for physician behavior

Does it matter if physicians are dissatisfied, lacking in commitment, or burned out? What is the quality of the evidence regarding the relation between physicians' attitudes and perceptions and their actual behavior?

Most studies have examined physician satisfaction and its effect on various physician outcomes. The evidence is fairly strong regarding physician turnover. A consistent finding in the research literature is that organizations with higher levels of physician dissatisfaction also have higher physician turnover rates. This finding is important because of its implications for organizational effectiveness. As Lichtenstein points out,

> The task of retaining physicians is a crucial one, not only because the organization must maintain its own stability and predictability, but also because the organization must seek to maintain the stability of the doctor-patient relationship and the continuity of care provided by physicians to patients.[5]

As mentioned earlier, some studies also suggest that physician satisfaction can influence patient satisfaction,[3,5,25] which has consequences for membership retention in HMOs.[19] The evidence is weaker regarding the relation between physician satisfaction and quality of care, but a few studies have found that physician dissatisfaction can adversely affect quality.[2,4] The findings of the Medical Outcomes Study suggest that patient compliance is affected by the attitudes of physicians and that breakdowns in compliance can have serious adverse effects, particularly for patients with chronic diseases.[4]

Dissatisfied physicians may also have more costly practice styles. Several studies have found that dissatisfied physicians use more total outpatient procedures and make more referrals than physicians who are satisfied, even after adjusting for case-mix and other covariates.[26,27] Whether these differences affect outcomes is unclear, but greater resource use by physicians certainly increases the cost of care.

Few studies, if any, have examined how the level of commitment to an organization (eg, Kaiser Permanente) influences physician behavior, but because organizational commitment and physician satisfaction were so highly correlated in this study, one might expect that the effects would be similar to those for satisfaction. Well-designed empiric studies on the effects of physician burnout are also sparse, but the few existing studies suggest that burned-out physicians have more problems relating to patients. Their quality of care may also suffer.[6,7,10,12,25]

The tendency in today's competitive medical environment is to emphasize financial incentives and to increase scrutiny of medical decision making to reduce costs and increase productivity. These mechanisms increase the tension in clinical decisions and can have unanticipated consequences in physician morale and performance. As many scholars have pointed out, organizations do not succeed on the basis of rational incentives alone but by inducing suitable emotions—commitment, loyalty, satisfaction, and trust—in their participants. Internalized motivation is the most effective approach for enhancing performance of workers in any setting.[11,12,28]

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